

# Mental health issues of fire personnel: an exploratory study

## Abstract

The primary goal of the current study was to add to the literature regarding mental health implications of fire service membership. In the present study, 100 fire personnel were selected working in Haryana state of India. The DSM V cross cutting Questionnaire was used to assess mental health issues of the fire personnel and the results suggested that firefighters self-reported greater posttraumatic symptomatology on anger and substance issue domain of the test. In addition, the firefighters reported more distress on several subscales of the DSM V cross cutting Questionnaire.

**Keywords:** traumatic exposure, personality, critical incident stress, posttraumatic stress disorder, mental health, firefighters, neuroticism.

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## Introduction

Indian professional fire fighter workers perform a critical function in our society. They protect the rule of law, ensure our safety and provide assistance in emergencies and it is a strenuous and unique occupation due to the high levels of stress and risk involved as well as the low control nature of the job. Many psychological and physical health problems are prevalent in the professional firefighters' population and constitute a dominant area of investigation. However, there is an increasing realization that emergency work can come at a personal cost and that the regular exposure to trauma inherent in the role may be creating a large burden of mental and physical health problems<sup>1</sup> however alternatively confined interest has been given to describing factors that can make a contribution to firefighters' job performance and basic well-being, such as sleep problems, depression, substance use, social bonding.

Sleep disturbance, tiredness, and work-related accidents are frequent among shift workers who commonly work 8-hour rotating shifts (e.g., daytime/night time). However, in many furnace departments, extended rotating shift of 10 hour (h) days/14h nights are frequent instead of the standard three 8 h-shift rotating schedule. Evidence suggests that although extended rotating shifts do not add any additional health dangers past that of the trendy eight hour shift, fatigue, reduced alertness and terrible temper are more familiar among firefighters working night shifts.

Long working hours, leads to impaired alertness and increased accidents at work. Research shows that sleep deprivation is associated with decreased attention, alertness, and cognitive performance; increased sleepiness; exhaustion, and depression; poor quality of life; and increased risk for cardiovascular events, digestive disorders, obesity, diabetes, obstructive sleep apnea, altered immune response, the correlation between sleep patterns and drug use within the social context of the population of firefighters and the overall impact on anxiety, quality of life, social bonding, however requires more similar investigation.<sup>2</sup>

In general population, the rates of PTSD and depression might be as low as 1.9% and 10%, respectively. Yet higher rates are seen in fire personnel and other rescue workers exposed to human disasters, for PTSD and depression, respectively. Experienced firefighters are more likely to be exposed to human disasters given their time in the role. Nonetheless, a longitudinal positive correlation has been identified between years of work experience as a firefighter and level of traumatic stress and depression when comparing seasoned firefighters with new recruits; experienced firefighters were more likely to report lower levels of social support and self esteem.

Workload size and variability, team disputes, social support, uncertainty of position and self esteem were all found to be predictive of firefighter's depressive symptoms. Nonetheless, occupational stress and anxiety have been consistently associated with an increased risk of cardiovascular mortality, which are likely to be as high as 44% in skilled firefighters and four-fold risk when relative to other first responders. Therefore, identifying depressive symptoms in firefighters is an important initial step towards recognizing this population's mental health needs and avoiding adverse health related physical or psychological incidents. Additional concerns are that depression and stress vulnerability may increase the risk of suicidal behavior, but may also have reciprocal effects on alcohol drinking pattern.

Drinking alcohol has been associated with relieving anxiety and depression. Nonetheless, a problem occurs when consumption of alcohol becomes a dangerous behavior. The firefighter and others are at risk of risky drinking. The conduct of alcohol consumption among individuals and those in their social networks is highly correlated with regard to a group of firefighters who have been united for extended periods of time. Heavy drinking rates can be as high as 67 percent among men and 9 percent among women in similar groups (e.g. military), with binge drinking habits occurring in 48 percent of men and 31 percent of women, both trends being higher than the general population. The prevalence and history of alcohol consumption in the firefighter's social network has been given little consideration. Certain modifiable firefighter risk habits include smoking cigarettes

and drinking coffee. Nonetheless, as stimulants of the central nervous system, the use of caffeine and nicotine results in increased alertness, mild euphoria, muscle relaxation and increased psychomotor activity, despite the unpredictability of job crises coupled with rotational work shifts that can last for 16 hours at a time.

### Team work

The idea of brotherhood is deeply rooted among firefighters as social bonding and communication. Brotherhood was defined by firefighters as a historical, traditional, and universal ideal characterized by inherent dedication, love, respect, and mutual support, living by a code of unspoken duty, trust, honor, and loyalty, and creating membership and close relationships. As a result of living in the firehouse and working closely together for extended periods of time while scheduled for service, firefighters build close social ties and friendships with each other. Social bonds and interactions between firefighters and within the firehouse are key factors in alleviating distress. Ironically, some studies still suggest that experienced firefighters may have lower social support levels that make them more vulnerable to depression and stress. However, it is important to note that, despite firefighters' understanding of the significance of brotherhood as social bonding and connection, there are limited studies exploring social bonds and firefighter connections.

### Shift work

Firefighters work long shifts, often tedious, often sleep disrupted, often hazardous and "thrilling." Sleep disruption has been identified as the most upsetting stressor for firefighters and paramedics in a research study.<sup>3</sup> Research on shift workers in many jobs suggests they are at risk of stress-related disorders.<sup>4</sup>

### Second job stress

Due to low wages and long off-duty hours, 25% to 40% of firefighters hold second jobs. We are therefore vulnerable to "second work pressure" carryover effects.<sup>3</sup> High-demand/low-control assignments<sup>5</sup> specifically identified "firemen" as high-demand/low-control employees, i.e. having repeated demands with little choice on them. High demand/low job control features are precedents for lower job satisfaction and increased fatigue, anxiety, and burnout.<sup>5</sup> Also found that unresolved stress accumulation limits the ability of workers to learn solutions to new problems. Workers in high-demand / low-control jobs can therefore perform below their level of capability and at the same time be vulnerable to pressure, depression and burnout.

### Personality attributes/humanitarian motives

There is proof among firefighters of self-imposed internal conflicts which tend to be a mixture of personality traits and lack of need for assistance. Mitchell identified 12 personality traits of emergency service personnel (including firefighters and paramedics) that can contribute to cumulative stress: they need to be needed; they need to be in control; they need to be rescued; they need to seek encouragement. Furthermore, obsessive perfectionism and other compulsive behaviors motivate them. They are apparently inspired internally, action-oriented, and very committed. Mitchell suggested that in order to avoid pressure, many emergency service personnel may need to lower their idealized expectations.<sup>6</sup>

### Mental health

Firefighting staff may experience increased rates of psychiatric symptoms after witnessing or experiencing a traumatic event,

including depression, anxiety, and loss of appetite, lack of sleep, and constant worry or fear. These symptoms lead to psychiatric illness in the fire fighters.<sup>5</sup> As a result of daily stress firefighters find it difficult to understand how to cope up with this professional hazard.

In summary, the assessment of high-risk behaviors that can be modified to promote health and well-being among firefighters has received little attention. The impact of sleep deprivation, depression, substance use (alcohol and caffeine consumption, nicotine use), social bonding and connection, and quality of life on the psychosomatic well-being of professional firefighters needs further exploration. Therefore, this descriptive study was conducted to examine the prevalence and complex relationships between sleep deprivation, depression, substance use, social bonding, and quality of life in professional firefighters.

## Review of literature

A number of researchers<sup>7,8</sup> have examined the possible relationship between stress and cognitive functioning among emergency services personnel.

Regehr et al. identified the symptoms ranging from anxiety and loss of cognitive functioning to second-guessing judgment on an emergency scene among emergency care personnel. Researchers also found that after responding to traumatic incidents, emergency personnel had frequent hallucinations, flashbacks, and loss of appetite.

Fullerton et al.,<sup>9</sup> concluded that firefighters are more likely to experience psychological distress when they interact with survivors of traumatic incidents.

Orner (1995) studied the effects on firefighters and emergency staff of stressors and distressors. Orner found that firefighters experienced suicidal thoughts, anxiety, and disruptive and negative emotional responses depending on the time of exposure to a traumatic incident.

Beaton (1993), sleep disturbance was reported as the most bothersome stressor for both firefighters

Corneil (1993) recorded that firefighters face a variety of risks, such as exposure to chemical and biological hazards and long-term effects of smoke exposure, as well as the risk of psychological conditions such as posttraumatic stress disorder (PTSD), arising from traumatic events being experienced.

Study by Figley (1995) shows that firefighting workers may suffer physical and emotional problems after a 48-hour return from an emergency call or home. For example, secondary trauma is a term that explains the effects of stress on traumatized individuals encountered by public health workers.

Hume (1966) noted that firefighting personnel experience emotional empathy, the process of sharing the experiences and feelings of another.

Carlier, Lamberts, and Gersons, who concluded that police personnel who have to deal with rape victims, cases of abuse, murders, and other traumatic incidents are more likely to experience a higher incidence of PTSD.

Maslach (1982) noted that the contributions of unrelenting ambient noise, role ambiguity, uncertainty of one's job performance, and hazardous work environments may contribute to intrapersonal conflict

Norwood & Rascati (2012) study concluded that firefighter psychological health is also a significant concern. Firefighter stress

has been the catalyst for twenty-five to thirty percent of firefighters abusing alcohol.

Haddock, Poston, and Jahnke (2011) reported that the causation for obesity in the fire service could be any number of predisposing factors such as sleep interruption, shift work, unhealthy eating, and lack of physical fitness.

Witteveen et al. (2010), in a study with police officers and firefighters, found that the workers who had been exposed often to negative life events had more symptoms of post-traumatic stress disorder, depression and fatigue.

Van der Doef and Maes (1999) showed that high job demands and low control have negative effects on psychological and physiological health.

Fullerton et al., (1992) suggest repeated exposure to trauma puts rescue workers, especially first responders such as firefighters at an increased risk of developing post-traumatic and stress disorder.

Monk, 1990; Tasto (1978) Research on shift workers in many occupations suggests that they are at risk for stress related disorders .

Leigh (1988), fire fighting is a stressful and dangerous occupation that ranks fifth in occupational mortality in the United States.

Karasek (1988) specifically identified “firemen” as employees of a high demand/low control occupation, i.e., having repeated demands placed on them with little choice of assignments and also found that the accumulation of unresolved strain restricts workers’ ability to learn solutions to new problems. Thus, workers in high demand/low control jobs may perform below their ability levels and simultaneously be vulnerable to stress and burnout.

Mitchell (1990) stated that some emergency service workers may need to lower their idealized aspirations of what they hope to accomplish to avoid stress.

Haddock et al. (2012) The few studies that considered mental disorders other than PTSD among emergency workers suggested a similar pattern, with one study of firefighters reporting hazardous drinking behaviors in excess of 40 percent.

Usually, Brewin et al. (2000) firefighters were subjected during their careers to numerous serious incidents. With the number of exposures to traumatic events, the risk of developing PTSD increases.

Meyer et al. (2012) confirmed that PTSD diagnosis was not predicted by the number of critical incidents involving firefighters.

Kaufmann et al. (2013), while some retrospective studies have shown that firefighters subjected to more forms of injury have a higher risk of mood and substance use disorders.

Research by Meyer et al. (2012) found that there was no correlation between the number of firefighters ‘ critical accidents and common mental disorders.

Berger et al. (2012) research on emergency workers ‘ mental health focused solely on PTSD, with a recent meta-analysis of 16 studies suggesting that 7% of former firefighters suffer from PTSD.

## Literature summary

To sum up, little attention has been paid to assessing high-risk behaviors that can be modified to promote health and well-being among firefighters. The effect of skilled firefighter’s sleep deprivation,

social bonding and well-being require more investigation. This study was therefore carried out to examine the prevalence and complex relationships between sleep deprivation, substance use, social bonding and the quality of life of professional firefighters. Firefighters are at risk of developing severe health problems. Wellness programs aim to improve the overall health of firefighters. Research has shown improvement in the wellness program, as mentioned earlier. There are laws that require regular medical exams. So why isn’t this department adopting a wellness program?

## Problem

The problem of the present study is, “Mental health perspective of fire personnel: An exploration.” There is surprisingly little research on the present research topic compared to the voluminous research that exists on mental health and few researches have been done on fire fighters and that too in the foreign countries and not in India. Research on fire fighter is scarcer than research on mental health. There is a gap between researches done in this area, therefore, to know the present scenario of mental health of fire personnel, the researcher in present study will be studying these two variables and exploring the following

## Objectives:

1. To study the mental health perspective of fire personnel.
2. To study the level of education difference on the mental health of fire personnel.
3. To study the years of education difference on the mental health of fire personnel.

## Hypothesis

It was hypothesized that the mental health of the firefighters would be optimum and positive

## Method

### Sample

The sample of the present research consisted of 100 fire personnel actively working at the fire station in Haryana state of India. The age range was 30-50 years and purposive random sampling technique was used for selection.

### Research design

The current study employed an exploratory research design in which we further used descriptive design in order to explore the mental health perspective of fire personnel.

### Selection of tool

The following measures were used for collecting information regarding the subject’s experience of mental health issues.

### The DSM-5 level I cross-cutting symptom

The DSM-5 Level 1 Cross-Cutting Symptom Scale is a self-or informant-rated scale that assesses psychiatric clinical areas of mental health. It is intended to help patients identify new areas of concern that could have a significant impact on the care and prognosis of the patient. Therefore, the measure can be used to track changes in the symptom of the patient.

The adult version of the test consists of 23 questions evaluating 13 psychological areas, including depression, frustration, mania, anxiety,

somatic symptoms, suicidal ideation, paranoia, sleep problems, memory, repeated thoughts and actions, dissociation, functioning of personality and use of drugs. Each item inquires about how much (or how often) the individual has been bothered by the specific symptom during the past 2 weeks on a 5 point Likert scale. If the individual is of impaired capacity and unable to complete the form the informant will provide response on behalf of the client.

### Data analysis

Data for the study was analysed using the Statistical package for social science, SPSS version 20. Means, standard deviations was performed to find the difference between variable

### The ethical issue

Oral Consent was taken from each individual participating for the study.

**Table 1** Showing the descriptive statistics of various dimensions on DSM 5 test

Descriptive Statistics					
Mental Health dimensions	N	Minimum	Maximum	Mean	Std. Deviation
Depression	100	0	3	0.18	0.53899
Anger	100	0	3	0.33	0.69711
Mania	100	0	1	0.05	0.21904
Anxiety	100	0	2	0.02	0.2
Somatic	100	0	2	0.14	0.37659
Suicidal	100	0	0	0	0
Psychosis	100	0	0	0	0
Sleep	100	0	3	0.24	0.71237
Memory	100	0	2	0.16	0.46537
Repetitive	100	0	2	0.1	0.38925
Dissociative	100	0	0	0	0
Personality	100	0	2	0.07	0.32582
Substance issue	100	0	4	1.01	1.38166
Valid N (listwise)	100				

## Discussion

Indubitably, fire fighters are at a greater risk of exposure to harmful effects of toxic substances along with severe emotional trauma that may result from severe emotional distress resulting in considerable lowering down of quality of life. This also leads to several psychiatric impairments like anxiety, stress, depression, PTSD etc which are important dimensions of mental health. Hence, the present study has been an attempt to study the mental health issues of fire fighters in Haryana, India.

100 fire fighters were examined in terms of issues related to Depression, Anger, Mania, Anxiety, Somatic, Suicidal, Psychosis, and Sleep, memory, Repetitive, Dissociative, Personality and Substance abuse. The use of SPSS was required for detailed data analysis. The results revealed that the present sample of fire fighters (n=100) scored high on the dimensions of anger, and substance abuse.

### Inclusion criteria

Minimum of one year experience.

### Exclusion criteria

Having any psychiatric illness diagnosed by the psychiatrist.

Less than one year of experience.

## Results

Results are indicated and enumerated in Table 1. It describes the mean score of participants on thirteen domain of DSM V cross cutting test. The participants have scored high mean value on substance issue and anger domain which indicates that in the present study, firefighters have problem majorly in these two domains as compared to other domains of the test.

In the present study, the participants were selected from Haryana state and due to the cultural impact majority of male population are inclined towards consuming substance use which includes alcohol, hookah, cigarette etc and most of the males take substance when stress arises, firefighters are prone to stressful situation which lead to consumption of substance use.

The present study is alarming in that it indicates that the mental health of fire fighters is at considerable risk in the present scenario. One on one interaction with the mental health professionals along with group counseling strategies may help in the enhancement of mental status thereby lowering the perceived impact of psychosocial stressors and physical conditions.

There is surprisingly little research on the present research topic compared to the voluminous research that exists on mental health and few researches have been done on fire fighters and that too in the

foreign countries and not in India. Research on fire fighter is scarcer than research on mental health. There is a gap between researches done in this area; therefore, to know the present scenario of mental health of fire personnel, the present study was focused on the mental health issues of fire fighters.<sup>10–20</sup>

## Conclusion

The results showed that fire fighters in the present study faced mental health issues like consumption of substance and anger issues and these issues will help mental health professionals to provide intervention to them. This will ensure their optimum productivity with enhanced positive mental health along with decrease in negative health symptoms. More such studies with Indian fire fighters are required from time to time so that the mental health needs of fire fighters may be addressed appropriately. The aim of the present study has been fulfilled.<sup>21–23</sup>

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## Conflicts of interest

The authors have no conflicts of interest to declare.

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